[0068] An embodiment of the invention may be used to perform a chemical reaction in a focused process flow. For example, an embodiment of the invention may be used to fabricate a structure, such as a wall or divider within a micro-fluidic channel, as disclosed in co-pending U.S. Patent Application Serial No. 10/609,322 filed on 06/26/2003. — N.L.

VI. HYDRODYNAMIC FOCUSING IN SAMPLE ANALYSIS

[0069] **Figure 9** shows a sample analysis system 990 containing an analysis device 994 to analyze a focused process flow 934 in an analysis region 932 of an outlet channel 930 of a hydrodynamic focusing device 900 residing on a micro-fluidic device 992, according to an embodiment of the invention. The hydrodynamic focusing may help to focus the process flow inward from at least three or four sides thereof, separate the focused process flow from walls of the outlet channel, reduce a cross sectional dimension or area of the focused process flow so that it is better suited for analysis, and otherwise improve sample analysis.

[0070] The sample analysis system 990 contains a micro-fluidic device 992 containing the focusing device 900. Without limitation, the micro-fluidic device 992 may comprise a small, conveniently sized, portable, hand-held, reusable or disposable micro-fluidic analysis system. The micro-fluidic device generally provides process and focusing flows to the hydrodynamic focusing system and may perform other desired operations. The process and focusing flows may be provided to the channels from an external or off-device source, such as a syringe or other fluid supply device, or an on-device source, such as a channel or other fluid passage. If an off-device fluid source is appropriate the micro-fluidic device may contain ports, for example containing a rubber or other elastomeric material, for insertion of syringe needles for the process and focusing flows.

[0071] The invention is generally not limited to any known process flow. Suitable process flows may comprise an aqueous, organic, or biological solution. The process flow may contain a species of interest 938. The species of interest may comprise a biological material, such as a cell, organelle, liposome, biological molecule or macromolecule, enzyme, protein, protein derivative, protein fragment, polypeptide, nucleic acid, DNA, RNA, nucleic acid derivative, biological molecule tagged with a particle, fluorescently labeled biological molecule, charged species, or charged protein.